

***Lycia rachelae* (Twilight Moth)****Priority 2 Species of Greatest Conservation Need (SGCN)****Class:** *Insecta* (Insects)**Order:** *Lepidoptera* (Butterflies, Skippers, And Moths)**Family:** *Geometridae* (Emerald Moths And Allies)**General comments:**

Only 3 extant EOs; typically assoc. w/PPSO barrens, which are very rare in ME; not found in 4 of 7 barrens surveyed in 1980s-90s by Schweitzer and others; surveys needed to assess potential to occur in surrounding oak-pine woods on similar sands; early emergence period may cause it to be overlooked; eastern US populations are extremely disjunct from main range and far from each other

**Species Conservation Range Maps for Twilight Moth:**Town Map: [Lycia rachelae Towns.pdf](#)Subwatershed Map: [Lycia rachelae HUC12.pdf](#)**SGCN Priority Ranking - Designation Criteria:****Risk of Extirpation:**Maine Status: **Threatened****State Special Concern or NMFS Species of Concern: NA****Recent Significant Declines: NA****Regional Endemic: NA****High Regional Conservation Priority: NA****High Climate Change Vulnerability: NA****Understudied rare taxa:**

Recently documented or poorly surveyed rare species for which risk of extirpation is potentially high (e.g. few known occurrences) but insufficient data exist to conclusively assess distribution and status. \*criteria only qualifies for Priority 3 level SGCN\*

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**Historical: NA****Culturally Significant: NA****Habitats Assigned to Twilight Moth:****Formation Name**      **Northeastern Upland Forest****Macrogroup Name**      **Central Oak-Pine****Habitat System Name:** Central Appalachian Dry Oak-Pine Forest    **Notes:** *potential***Habitat System Name:** Northeastern Interior Pine Barrens    **\*\*Primary Habitat\*\*****Macrogroup Name**      **Northern Hardwood & Conifer****Habitat System Name:** Northeastern Coastal and Interior Pine-Oak Forest    **Notes:** *potential***Stressors Assigned to Twilight Moth:****Stressor Priority Level based on  
Severity and Actionability**

	Moderate Severity	High Severity
Highly Actionable	Medium-High	High
Moderately Actionable	Medium	Medium-High
Actionable with Difficulty	Low	Low

*Lycia rachelae* (Twilight Moth)

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## IUCN Level 1 Threat      Natural Systems Modifications

## IUCN Level 2 Threat:      Fire and Fire Suppression

Severity: Severe

Actionability: Moderately actionable

Notes: pine barren habitat is fire dependent - fire suppression can alter successional stage and habitat availability over time; fire can cause direct mortality

## IUCN Level 1 Threat      Other Options

## IUCN Level 2 Threat:      Lack of knowledge

Severity: Moderate Severity

Actionability: Highly actionable

Notes: Extent of habitat/host plant use undocumented; lack of comprehensive survey effort and monitoring to identify additional occurrences and determine species status

## IUCN Level 1 Threat      Pollution

## IUCN Level 2 Threat:      Agricultural and Forestry Effluents

Severity: Moderate Severity

Actionability: Highly actionable

Notes: Nontarget species impacts from aerial pesticides; especially control efforts for gypsy moth in southern ME

## IUCN Level 1 Threat      Residential and Commercial Development

## IUCN Level 2 Threat:      Housing and Urban Areas

Severity: Severe

Actionability: Moderately actionable

Notes: Habitat loss and fragmentation; pine barren habitat is prime land for development in southern ME

## IUCN Level 1 Threat      Agriculture and Aquaculture

## IUCN Level 2 Threat:      Annual and Perennial Non-timber crops

Severity: Moderate Severity

Actionability: Moderately actionable

Notes: Some barren habitat is being converted to intensive blueberry production

## IUCN Level 1 Threat      Energy Production and Mining

## IUCN Level 2 Threat:      Mining and Quarrying

Severity: Moderate Severity

Actionability: Moderately actionable

Notes: Habitat loss (e.g., sand and gravel extraction)

## IUCN Level 1 Threat      Residential and Commercial Development

## IUCN Level 2 Threat:      Commercial and Industrial Areas

Severity: Moderate Severity

Actionability: Moderately actionable

Notes: Habitat loss and fragmentation; pine barren habitat is prime land for development in southern ME

## IUCN Level 1 Threat      Transportation and Service Corridors

## IUCN Level 2 Threat:      Roads and Railroads

Severity: Moderate Severity

Actionability: Moderately actionable

Notes: Habitat loss and fragmentation; pine barren habitat is prime land for development in southern ME

## Species Level Conservation Actions Assigned to Twilight Moth:

*\*Only species specific conservation actions that address high (red) or medium-high (orange) priority stressors are summarized here.*

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<b>Conservation Action</b>	<b>Category:</b> Survey and Monitoring	<b>Biological Priority:</b> high	<b>Type:</b> new
Develop and implement a systematic protocol for monitoring population size, demographics, and trends.			

**Stressor(s) Addressed By This Conservation Action**

Lack of knowledge

<b>Conservation Action</b>	<b>Category:</b> Research	<b>Biological Priority:</b> high	<b>Type:</b> new
Identify host plant(s) and document extent of habitat use outside Pitch Pine - Scrub Oak barrens			

**Stressor(s) Addressed By This Conservation Action**

Lack of knowledge

**Conservation Actions Associated with the Dry Barrens Lepidoptera Guild:**

<b>Conservation Action</b>	<b>Category:</b> Species Management	<b>Biological Priority:</b> critical	<b>Type:</b> new
Prepare occurrence maps and pesticide spray consultation guidelines for rare Lepidoptera and distribute to strategic partners including Maine Bureau of Pesticides Control.			

**Stressor(s) Addressed By This Conservation Action**

Agricultural and Forestry Effluents

<b>Conservation Action</b>	<b>Category:</b> Habitat Management	<b>Biological Priority:</b> critical	<b>Type:</b> new
Conduct a statewide review of potential high quality barrens habitat that is threatened by succession and identify strategic habitat restoration actions for implementation by key conservation partners.			

**Stressor(s) Addressed By This Conservation Action**

Fire and Fire Suppression

**Broad Taxonomic Group Conservation Actions:**

Additional relevant conservation actions for this species are assigned within broader taxonomic groups in Maine's 2015 Wildlife Action Plan: Element 4, Table 4-1.

**Habitat Based Conservation Actions:**

Additional conservation actions that may benefit habitat(s) associated with this species can be found in Maine's 2015 Wildlife Action Plan: Element 4, Table 4-15. Click on the Habitat Grouping of interest to launch a habitat based report summarizing relevant conservation actions and associated SGCN.

*The Wildlife Action Plan was developed through a lengthy participatory process with state agencies, targeted conservation partners, and the general public. The Plan is non-regulatory. The species, stressors, and voluntary conservation actions identified in the Plan complement, but do not replace, existing work programs and priorities by state agencies and partners.*